25. (Amended) A method of packaging a force sensing element having an element surface comprising the following steps:

A5

a) applying the force sensing element to a housing part having an external housing surface so that the element surface and the external housing surface are substantially coplanar; and,

b) attaching the force sensing element to the housing.

REMARKS

Claims 1-29 remain in the application.

The Examiner objected to the Drawing as being informal. A formal Drawing will be submitted.

The Examiner objected to the Title of the invention. Accordingly, the Title has been amended to overcome the Examiner's objection.

The Examiner quoted the MPEP with regard to Abstracts but did not object to the current Abstract. Applicants have reviewed the Abstract and have concluded that the current Abstract meets the requirements of the MPEP. Accordingly, no change to the Abstract has been made.

The Examiner rejected claims 1-29 under 35 U.S.C. §112 as being indefinite. Without specifying which words in the claims cause the claims to be indefinite, the Examiner maintains that the claims are indefinite. The Examiner does assert that the claims recite a sensor package and a sensing element but do not set forth steps involved in the method and/or process. Applicants are not certain of the point that the Examiner is making. Claims 1 and 18 are apparatus claims which recite a sensor package having a force sensing element and a housing. The housing is limited to one that supports the force sensing element so that a surface of the housing and a surface of the force sensing element are coplanar. These recitations are neither indefinite nor vague. Indeed, these recitations are clearly understandable, and the Examiner has not shown how the claim is not understandable.

The Examiner also asserts that these claims recite a use without reciting any steps of how to practice the use. However, claims 1 and 18 do not recite a use. They merely define and limit the housing recited in the claims. Again, such language is perfectly understandable.

Claim 25 is likewise definite and does not contain any use limitations.

Accordingly, claims 1-29 satisfy the requirements of 35 U.S.C. §112.

The Examiner also rejected claims 1-29 under 35 U.S.C. §101, asserting that these claims are improper process claims. However, claims 1 and 18 are apparatus claims and, as explained above, do not contain any use limitations. Claim 25 is a method claim and likewise does not contain any use limitations. Accordingly, claims 1-29 satisfy the requirements of 35 U.S.C. §101. The Examiner rejected claims 1, 4-6, 10-12, 18-21, and 25-27 under 35 U.S.C. §102 as being anticipated by the Maurer patent. The Maurer patent discloses a transducer 10 having a housing base 12 formed with a cavity 14 and electrical leads 18. A sensing element 34 is sandwiched between two conductive elastomeric seals. The sensing element 34 and the two conductive elastomeric seals are inserted into the cavity 14 as shown in Figure 2.

Claim 1 requires a housing having a housing surface and a well extending into the housing through the housing surface. Claim 1 further specifies that the force sensing element is supported within the well so

that the element surface and the housing surface are substantially coplanar. The apparatus disclosed in the Maurer patent does not meet these limitations. For example, the only surfaces of the sensing element 34 that are arguably coplanar with a surface of the housing 12 are the sides of the sensing element 34 which abut the interior sides of the housing 12. However, the cavity 14 does not extend into the housing 12 through the sides of the housing 12.

Accordingly, claim 1 is not anticipated by the Maurer patent.

Claim 18 requires a housing having a housing surface that is coplanar with an element surface of a sensing element such that the element surface and the housing surface face in a common direction. The apparatus disclosed in the Maurer patent does not meet these limitations. For example, the only surfaces of the sensing element 34 that are arguably coplanar with a surface of the housing 12 are the sides of the sensing element 34 which abut the interior sides of the housing 12. However, the sides of the housing 12 and the sides of the sensing element 34 face in opposite directions, not in a common direction.

Accordingly, claim 18 is not anticipated by the Maurer patent.

Claim 25 requires a housing part having an external housing surface and further requires that the element surface and the external housing surface are substantially coplanar. The apparatus disclosed in the Maurer patent does not meet these limitations. For example, the only surfaces of the sensing element 34 that are external are the top and bottom of the housing 12, and neither of these surfaces is coplanar with the element surface.

Accordingly, claim 29 is not anticipated by the Maurer patent.

Because claims 1, 18, and 29 are not anticipated by the Maurer patent, the other rejected claims 4-6, 10-12, 19-21, 26, and 27 are likewise not anticipated by the Maurer patent.

The Examiner rejected the remaining claims under 35 U.S.C. §103 as being obvious over various combinations of the Maurer patent, the Grey patent, and the Sokn patent. However, because the Grey patent and the Sokn patent fail to make up for the deficiencies of the Maurer patent, the claims rejected under 35 U.S.C.

§103 cannot be obvious over any combination of the Maurer patent, the Grey patent, and the Sokn patent.

Attorney Docket
M10-25447

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"VERSION WITH MARKINGS TO SHOW CHANGES MADE."**

In view of the above, it is clear that the claims of the present invention are patentable over the reference applied by the Examiner. Accordingly, allowance of these claims and issuance of this patent application are respectfully requested.

Respectfully submitted,

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By: _____

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May 17, 2001

Application No. 09/437,418

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE DRAWING

Figure 5 has been amended as follows:

With the concurrence of the Examiner, applicants intend to amend Figure 5 of the Drawing by deleting the reference numeral "30" therefrom as shown by the red ink notation on the accompanying copy of Figure 5.

IN THE SPECIFICATION

The title on page 1 has been amended as follows:

SENSOR PACKAGE FOR FLUSH MOUNTING OF A SENSOR

Please replace the sentence beginning at page 3, lines 6-9 with the following rewritten sentence:

--As shown in Figures 1 and 2, a sensor package 10 includes a housing 12 that may be fabricated from a suitable plastic, that has a center line 13, and that supports a plurality of terminals such as terminals 14,

16, 18, and 20, although other terminal arrangements can be provided.--

The sentence beginning at page 3, lines 6-9 has been amended as follows:

--As shown in Figures 1 and 2, a sensor package 10 includes a housing 12 that may be fabricated from a suitable plastic, that has a center line 13, and that supports a plurality of terminals such as terminals 14, 16, 18, and 20, although other terminal arrangements can be provided.--

The sentence beginning at page 5, lines 5 and 6, has been amended as follows:

The shelves 72 and 74 support connection pads [76, 78, 80, and 82] 80, 82, 84, and 86 that are suitably coupled to corresponding terminals (not shown).

IN THE CLAIMS

Claims 1-4, 18 and 25 have been amended as follows:

1. (Amended) A sensor package comprising:

a force sensing element having an element surface; and,

a housing having a housing surface and a well extending into the housing through the housing surface, wherein the housing is arranged to support the force sensing element within the well so that the element surface and the housing surface are substantially coplanar [and so that the element surface of the force sensing element directly senses a force without need of an actuator].

2. (Amended) The sensor package of claim 1 wherein the sensing element has a thickness, wherein the housing includes [a well and] a shelf, wherein the shelf supports the sensing element within the well, and wherein the shelf has a depth with respect to the thickness of the sensing element such that the element surface protrudes above the housing surface.

3. (Amended) The sensor package of claim 1 wherein the sensing element has a thickness, wherein the housing includes [a well and] a shelf, wherein the shelf

supports the sensing element within the well, and wherein the shelf has a depth with respect to the thickness of the sensing element such that the element surface is depressed with respect to the housing surface.

4. (Amended) The sensor package of claim 1 wherein the sensing element has a thickness, wherein the housing includes [a well and] a shelf, wherein the shelf supports the sensing element within the well, and wherein the shelf has a depth substantially matching the thickness of the sensing element.

18. (Amended) A sensor package comprising:

a force sensing element having an element surface; and,

a housing having a housing surface, a well, and first and second shelves within the well, wherein the first and second shelves of the housing are arranged to support the force sensing element so that the element surface and the housing surface are substantially coplanar and so that the element surface and the housing surface face in a common direction [of the force sensing

element directly senses a force without need of an actuator].

25. (Amended) A method of packaging a force sensing element having an element surface comprising the following steps:

a) applying the force sensing element to a housing part having [a] an external housing surface so that the element surface and the external housing surface are substantially coplanar; and,

b) attaching the force sensing element to the housing.

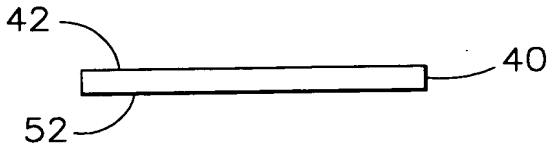

FIG. 3

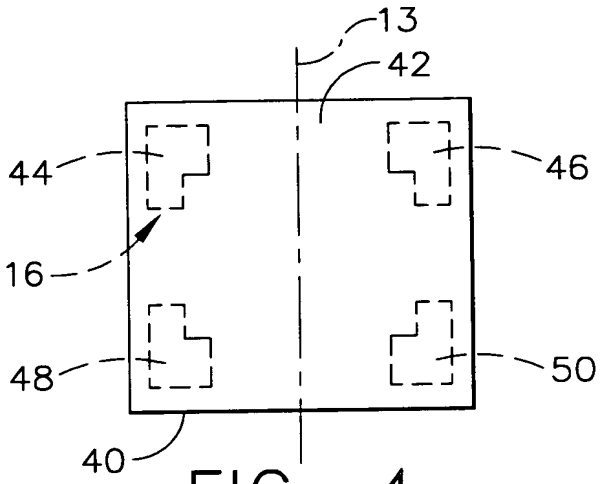

FIG. 4

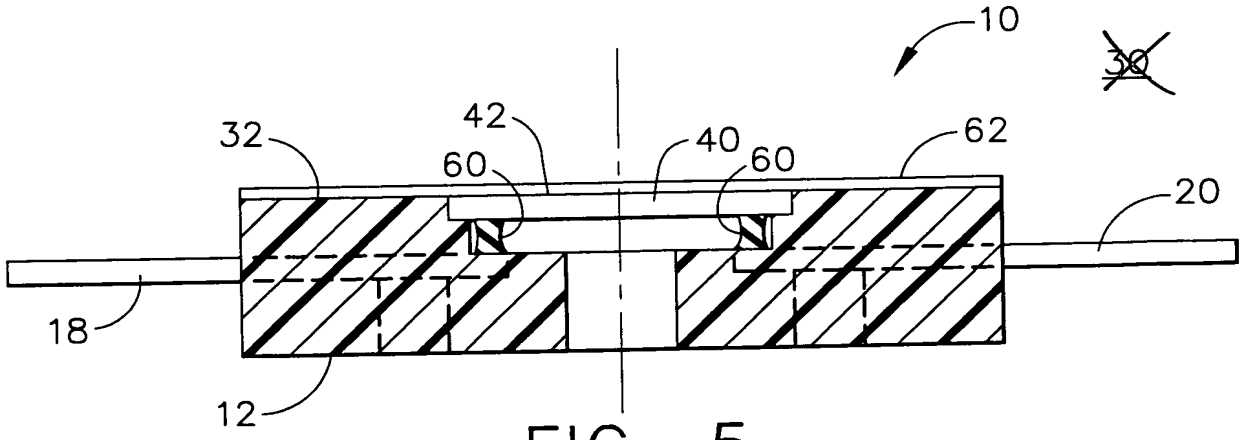

FIG. 5